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ABSTRACT

A study examined changes in self-concept of adolescents enrolled in outdoor adventure education courses offered at a private college-preparatory high school in New York City. Surveys were completed by 94 students, 36 of whom were enrolled in outdoor adventure education courses; 25 of these were males and 11 were females. Results found no significant difference in changes in global self-concept between students enrolled in outdoor adventure education courses and students not enrolled in those courses. Unlike previous studies that found significant changes in various domains of self-concept, this study found no significant difference in any domain of self-concept between students enrolled in outdoor adventure education courses and students not enrolled in those courses. The short-term nature of the outdoor experiences in this study may have been related to the lack of change in self-concept. Students in this study participated in two 3-day outdoor experiences over the course of 4 months. The outdoor experiences in other studies were usually longer and of continuous duration. A significant gain was found in family self-concept favoring males enrolled in outdoor adventure education courses. Recommendations for future research are discussed. (Contains 41 references) (TD)

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MULTIDIMENSIONAL SELF-CONCEPT AND OUTDOOR ADVENTURE EDUCATION WITH ADOLESCENTS

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INTRODUCTION

With the goal of educating the "whole" student, including a student's self-concept and self-esteem, schools are searching for and initiating programs and activities to enhance self-concept (i.e., the perceptions one holds about him or herself), especially with adolescents (Shavelson, Hubner, & Stanton, 1976; Neill, 1997). Many of these programs designed to increase self-concept, or those that hold increased self-concept as a given outcome of their program, are offered for adolescents in the context of traditional academic settings such as high schools and colleges (Finkenberg, Shows & DiNucci, 1994; Gillett, Thomas, Skok, & McLaughlin, 1991; Kaplan, 1974; Lambert, Segger, Staley, Spencer & Nelson, 1978; Wilgenbush & Merrill, 1999). Additionally, programs specifically aimed at increasing the self-concept of specific populations (i.e., youth at risk, adjudicated youth, females, people with disabilities, traditional high school students, and members of various ethnic minority groups) have been implemented and studied. These programs have used a number of approaches based on several theoretical models that affect adolescent self-concept, and research studying the outcomes of these programs has reported mixed results (Hattie, Marsh, Neill & Richards, 1997; Hazelworth & Wilson, 1990; Luckner, 1989; Marsh & Richards, 1988; Marsh, Richards & Barnes, 1986, 1987; McDonald & Howe, 1989; Minor & Elrod, 1994; Neill, Rawson & McIntosh, 1991; Wilgenbush & Merrill, 1999).

Outdoor adventure education programs use experiential activities such as backpacking, rock climbing, canoeing, and other outdoor recreation activities to achieve various goals and objectives, one of which is the improvement of self-concept. However, as the implementation and popularity of these self-concept enhancing programs increase, there is much controversy re-

garding the impact and efficacy of these programs. Wilgenbush and Merrill (1999) note there has been particular debate on the differing effects of these programs on males and females. Many studies examining impacts of these programs on self-concept are over 10 years old; today's adolescents live in a much different world. Youth today are exposed to events and circumstances that may affect their self-concept at a much earlier age than adolescents in the past. Exposure to mass media and the internet has added to this phenomenon.

The research methods used to examine these programs and the changes in self-concept have been questioned (Hattie, et al., 1997). Some studies examining self-concept and outdoor adventure education were based on one-dimensional theoretical models of self-concept, had limited statistical power due to small sample sizes, used flawed statistical techniques, provided no control or comparison group, or ignored independent variables affecting the participants' self-concept (Crain & Bracken, 1994; Delugach, Bracken, Bracken & Schicke, 1992; Harter, 1986; Hattie et al., 1997). Neill (1997) recognized several additional shortcomings of the existing research regarding outdoor adventure education, including improper generalization of results from one type of program to other programs (e.g., Outward Bound, traditionally a 21-day program designed to provide individual and group challenges using the outdoors as a medium, to traditional school programs), variable outcomes between programs of the same type (e.g., different Outward Bound schools), scarcity of research on non-Outward Bound programs, and lack of research on programs lasting less than 14 days.

The examination of short-term programs not associated with Outward Bound programs is

needed. Further, the use of traditional high school students as research participants is needed as programs serving this population continue to grow in popularity (Neill, 1997). Additionally, the use of covariates, such as previous experience with outdoor adventure activities, current life events that may affect self-concept (e.g., death of a parent/guardian, poor academic performance), risk-taking behaviors, and perception of risk associated with outdoor adventure education activities, is warranted.

Therefore, this study focused on the changes in self-concept of adolescents enrolled in outdoor adventure education courses offered at a traditional college preparatory high school and explored how gender influenced changes in specific domains of self-concept.

Hypotheses

The investigator proposed that adolescents of high school ages participating in outdoor adventure education courses, including at least two overnight outdoor experiences, would have greater changes in self-concept than those students not participating in those courses. The following hypotheses were proposed:

H₁: Students participating in the outdoor adventure education courses would have greater positive change in general self-concept and each of the dimensions of self-concept as measured by the Multidimensional Self-Concept Scale (MSCS) than students not participating in the outdoor adventure education courses.

H₂: There would be significant differences in change in general self-concept and the dimensions of self-concept between males and females participating in the outdoor adventure education courses as measured by the MSCS.

Previous outdoor experience, perception of risk associated with outdoor activities, and current level of risk taking behavior, as well as the baseline MSCS scores, were used as covariates as appropriate. Additionally, self-reported current life events were used to determine if any participant's self-concept was unduly influenced by factors occurring in everyday life (e.g. death

of a parent, moving location of residence, facing peer pressure).

LITERATURE REVIEW

Self-concept has been extensively studied by researchers from a variety of fields and is one of the more popular topics of research in psychological studies today (Strein, 1998). Self-concept has been defined as "...the totality of a complex, organized, and dynamic system of learned beliefs, attitudes and opinions that each person holds to be true about his or her personal existence" (Purkey, 1988, p. 1). Contemporary theories of self-concept regard the construct as multidimensional and relating to specific facets of an individual's sense of self (Bracken, Bunch, Keith & Keith, 2000; Marsh, Parker, & Barnes, 1985; Shavelson, Hubner, & Stanton, 1976). Marsh & Shavelson (1985) described the characteristics of a sound model of self-concept as follows:

1. It is multifaceted in that people categorize the vast amount of information they have about themselves and relate these categories to one another. The specific facets reflect the category system adopted by a particular individual and/or shared by a group.
2. It is hierarchically organized, with perceptions of behavior at the base moving to inferences about self in subareas (e.g., academic—English, science, history, mathematics), then to inferences about self in general.
3. General self-concept is stable, but as one descends the hierarchy, self-concept becomes increasingly situation specific, and as a consequence, less stable.
4. Self-concept becomes increasingly multifaceted as the individual moves from infancy to adulthood.
5. It has both a descriptive and an evaluative dimension such that individuals may describe themselves ("I am happy") and evaluate themselves ("I do well in mathematics").
6. It can be differentiated from other constructs such as academic achievement (p. 107).

Models that do not define self-concept in a similar manner have considered unsound, as researchers have proved the existence of these characteristics of self-concept (Bracken, Bunch, Keith & Keith, 2000; Marsh & Shavelson, 1985; Marsh, Parker, & Barnes, 1985; Shavelson, Hubner, & Stanton, 1976).

Modern perceptions regarding gender differences in adolescent self-concept generally have merit. Wilgenbush and Merrell (1999), in their meta-analysis of gender differences in self-concept, reported that those dimensions of self-concept that have significant differences between males and females are relatively small in nature. Crain (1996) reported these differences as having little clinical significance. However, these authors warned that broad generalizations should not omit these small differences in self-concept between males and females.

Most conclusive findings regarding ethnic and racial differences in adolescent self-concept report little or no difference between groups (Artes, Oliver, Blount, Christaldi, Fredman & Lee, 1998; Crain, 1996; Crain & Bracken, 1994; Widaman et al., 1992). Crain and Bracken (1994) state, "Thus, both global and domain-specific self-concepts appear to be relatively impervious to differences among students' ethnic or cultural backgrounds" (p. 504). However, limitations to these studies such as lack of control for socioeconomic status may affect the above conclusion.

Theorists argue that change in self-concept is a result of evaluation stemming from two sources: direct personal experience and interaction with others in a number of environments occurring over time (Bracken, 1992; Crain & Bracken, 1994). Adolescents "... learn specific and generalized response patterns both directly and indirectly through (a) their successes and failures in various contexts, (b) the way others react to their actions, and (c) the manner in which others model behaviors and communicate expectations" (Crain & Bracken, 1994, p. 497). The Environmental-Behavioral Interactive Model (Bracken, 1992) suggests self-concept may be affected by feedback from personal experience, through interaction with others, and through vicarious experiences, all of which are

evident in outdoor adventure education programs (Bandura, 1977; Priest, 1993).

Outdoor adventure education courses have been in existence since the early 1940s, when Kurt Hahn introduced Outward Bound (Hattie, Marsh, Neill & Richards, 1997). Over the past 40 years, outdoor adventure education programs have grown in both number and scope (Hattie et al., 1997).

Outdoor adventure education courses are unique in that the participants are removed from their everyday environments. The inclusion of a physical activity, often where the level of risk is perceived by the participants to be greater than it actually is constitutes a defining property of outdoor adventure education courses (Ewert, 1989). Although physical activity is often a major component of an outdoor adventure education course, physical fitness and physical skill development are not inclusively primary goals (Marsh, Richards, & Barnes, 1986).

The combination of self-reliance, exposure to a different environment, and the experience of physical and mental challenges are used to meet the goals of outdoor adventure education courses (Marsh, Richards, & Barnes, 1986). These goals include self-concept, communication, problem-solving skills, academic performance, physical ability, and understanding of humans' role in the natural environment (Ewert, 1987; Gillett, Thomas, Skok, & McLaughlin, 1991; Hattie et al., 1997).

Changes in self-concept resulting from participation in outdoor adventure education courses have been the topic of many studies. However, the populations studied, the methods used, and the results obtained have varied. Early studies (e.g., Kaplan, 1974) focused on programs for males. Others included both males and females, but only compared females in the experimental group to females in the control group (Finkenberg et al., 1994). Although these studies found significant differences in change of self-concept, their findings have limited implications.

A weakness of several studies has been small sample size. For example, Kaplan (1974) examined the impacts of a two-week outdoor

program using an experimental group of 10 people and a control group of 25 people. Many studies did not control for other factors that may have affected self-concept. Lambert et al., (1978) noted their participants specifically registered for a course with an outdoor component and indicated this as a possible sign of greater initial levels of self-concept. There may have been little change to detect, as the participants' self-concept was already high. Marsh et al., (1986) did not use covariates in their examination of Outward Bound participants. Other studies used instruments based on the premise that self-concept was a global construct and did not consider the multidimensional, hierarchical nature of self-concept.

Studies that have used instruments based on multidimensional, hierarchical models of self-concept have provided mixed findings. Several researchers have found significant changes in the various dimensions as well as global self-concept (Finkenbergh et al., 1994; Gillett et al., 1991; Hazelworth & Wilson, 1990; Marsh et al., 1986). However, the dimensions of self-concept that were affected vary from study to study. Additionally, the magnitude of change varies as well.

Two meta-analyses of outdoor adventure research have provided evidence of the success of adventure programming in increasing the general and domain specific self-concept of adolescents. Cason and Gillis (1994) reported an average effect size of $d=.34$ for over sixty studies related to self-concept, while Hattie et al., (1997) found average effect sizes of $d=.11$ to $d=.51$. Although these indicate small to moderate effect sizes, support for positive change in self-concept is apparent.

Although there have been many studies examining outdoor adventure education programs and adolescent self-concept, these studies do not provide a full picture as to how individuals' self-concepts are affected. The demand for shorter programs and lack of research on these types of programs, the need for sound statistical methods in research related to adolescent self-concept and outdoor adventure education, and limited research on programs not using Outward Bound

participants as subjects were evident in the current literature.

METHOD

Participants

Subjects were recruited from a private, college preparatory high school in New York City in September 2000. Students who attended this school were generally middle to upper-middle class, white, and resided in New York City. An announcement inviting students to participate in this study was made by the researcher during the first week of school. Cover letters and informed consent forms were distributed at this time. The researcher returned the following day to collect signed informed consent forms and recruit additional participants. The researcher returned one last time to collect signed informed consent forms.

Some students were enrolled in one of two outdoor adventure education courses offered at this school during this semester. The first course entitled 'Experiential Education' was required of all tenth grade students. The second course, 'Wilderness' was an elective offered to eleventh and twelfth grade students. These outdoor adventure education courses included at least two separate overnight outdoor adventure experiences. These courses were led by the same faculty each time—one male instructor and one female instructor. Other students participating in this study were not enrolled in either of these courses and served as the control group.

Instrument

The Multidimensional Self Concept Scale (MSCS) was used for this study. The MSCS had 150 items and used a four point Likert scale (i.e., Strongly Agree, Agree, Disagree, Strongly Disagree). There were six subscales of 25 items each. These subscales corresponded to the domains of self-concept (Competence, Affect, Family, Social, Academic, and Physical) suggested by Bracken (1992). The MSCS was implemented for this study because it is easy to complete, is based on a multidimensional, hierarchical model of self-concept, and is grounded in self-concept theory that suggests change in

self-concept occurs from environmental and behavioral interactions. The MSCS has been found to be reliable and valid (Bracken & Howell, 1991).

Additionally, demographic data, and items related to self-reported risk taking behaviors, previous level of outdoor experience, and perceived risk of outdoor adventure activities were collected.

Research Design and Analysis

A repeated measures analysis of covariance (ANCOVA) was used to determine if there were any significant differences in general self-concept and each of the domains of self-concept between students taking either of two semester-long outdoor adventure education courses and students not taking either of these courses. Additionally, a repeated measures ANCOVA was used to determine if there were significant differences in general self-concept and each of the domains of self-concept between males and females enrolled in the outdoor adventure education courses. Covariates for potential use were: baseline data from the MSCS, previous level of outdoor experience, perceived risk of outdoor adventure activities, and self-reported risk taking behaviors. Data were collected at three points during the fall 2000 semester. The first wave of data were collected during the first week of classes, the second directly before the students enrolled in outdoor adventure education courses began the outdoor component of the course, and the third following the final outdoor experience.

The repeated measures ANCOVA was used as it enabled the researcher to address some of the recommendations of previous authors including lack of covariates, no comparison or control group, and inadequate sample size.

RESULTS

Ninety-four students participated in this study. This represents 40.3% of eligible students at the high school where data were collected. Demographic and descriptive statistics were determined for the sample of 94 students using the Statistical Package for Social Sciences (SPSS) version 10.0. There were a total of 36 high

TABLE 1
Age and previous number of outdoor trips

	Age		Previous number of outdoor trips	
	M	SD	M	SD
Total sample	15.18	1.00	2.85	3.02
Outdoor course	15.31	.71	2.61	2.16
No outdoor course	15.10	1.15	3.00	3.45

school students (38.3% of the total sample) enrolled in outdoor adventure education courses during the fall 2000. Age and previous outdoor experience are summarized in Table 1.

For the total sample, there were approximately an equal number of males and females, with 47.9% ($n = 45$) being male and 52.1% ($n = 49$) being female. There were more males ($n = 25$) than females ($n = 11$) enrolled in outdoor adventure education courses.

A majority of the students (71.3%) indicated their ethnicity as European/Caucasian/White ($n = 67$). The remaining students reported their ethnicity as follows: 9 (9.6%) were African American/Black, 9 (9.6%) were of mixed race, 7 (7.4%) indicated being Latino/Latina/Hispanic, and 2 (2.1%) were Asian or Pacific Islander.

For the total sample, 91.5% of the students reported having a "B" grade average or higher with the remainder indicating their grade average as "C." No student indicated a grade of "D" or lower.

A majority of the students (35.1%) were in tenth grade ($n = 33$). Twenty-seven students, or 28.7%, were in eleventh grade, 24 students (25.5%) were in ninth grade, and the remaining 10 students (10.6%) were in twelfth grade. Additional descriptive information may be found elsewhere (O'Connell, 2001).

Hypotheses Testing

All hypotheses were examined using repeated measures ANCOVA analyses. The baseline measure of the MSCS scale was used as the covariate for all hypotheses. Additionally, the baseline measure of Previous Level of Outdoor Experience was used as the covariate when examining differences between Competence Self-Concept of males and females enrolled in the outdoor adventure education courses. The only significant difference found was between males and females enrolled in the outdoor adventure education courses where males had a significantly greater gain in Family Self-Concept. Results are shown in Table 2. Effect sizes ranged from $<.001$ to $.08$ (η^2).

DISCUSSION

Increased self-concept has been cited as one of the potential benefits of participating in outdoor adventure education activities (Hattie, Marsh, Neill & Richards, 1997). Previous researchers have found significant changes in Global Self-Concept as well as the domains of self-concept as a result of high school students participating in outdoor adventure education courses (Finkenber, Snows & DiNucci, 1994; Gillett, Thomas, Skok, & McLaughlin, 1991; Luckner, 1989; Marsh, Richards & Barnes, 1986). This researcher found no significant difference between changes in Global Self-Concept for both female and male high school students enrolled in outdoor adventure education courses and students not enrolled in these courses.

Unlike previous studies, this researcher found no significant differences in any of the domains of self-concept between high school students enrolled in outdoor adventure education courses and students not enrolled in these courses. Other researchers found that students of similar ages to those in this study who participated in outdoor adventure education courses had significant changes in various domains of self-concept, including Physical, Social, Academic, Parents, Problem Solving and Identity among others (Hattie et al., 1997; Lambert, Segger, Staley, Spencer & Nelson, 1978; Luckner, 1989; Marsh & Richards, 1988; Marsh, Richards & Barnes, 1986; McDonald & Howe, (1989).

TABLE 2
Results of Repeated Measures ANCOVA

Analysis	df	F
Enrolled in OAE Courses vs. Not Enrolled		
Global Self-Concept	1, 85	.09
Physical Self-Concept	1, 91	.25
Affect Self-Concept	1, 91	2.75
Academic Self-Concept	1, 91	.69
Competence Self-Concept	1, 91	.01
Social Self-Concept	1, 91	.002
Family Self-Concept	1, 91	.16
Females vs. Males Enrolled in OAE Courses		
Physical Self-Concept	1, 33	2.13
Affect Self-Concept	1, 33	.06
Academic Self-Concept	1, 33	.05
Competence Self-Concept	1, 33	.47
Social Self-Concept	1, 33	.68
Family Self-Concept	1, 33	4.01*

* $p < .05$.

The nature of the outdoor adventure education courses examined in this study were different than those in previous studies and may have affected the findings. Students in this study participated in two short-term (three days each) outdoor experiences spread over the course of four months. The outdoor experience component of other studies were usually longer in length and of continuous duration. The extent of the outdoor experiences in this study may have affected the lack of change in Global Self-Concept and the domains of self-concept. Longer courses have been found to have greater effects than short-term courses (Hattie et al., 1997). The findings from this study are not unlike those reporting on short-term outdoor adventure education courses (Hattie, et al., 1997).

This researcher found a significant difference in gain in Family Self-Concept favoring males for those enrolled in outdoor adventure education courses. Females have been posited to possess higher self-concepts than males in areas concerning social relationships such as with friends and family. The social interaction needed for teamwork and for the understanding of oth-

ers that occurs on outdoor adventure education courses may have a greater affect in males' perceptions of their families by allowing them to transfer these experiences to family life.

The activities in which students enrolled in the outdoor adventure education courses participated may have played a role in the findings of this study. Students in the Experiential Education class went on a rock climbing and winter camping trip, whereas the Wilderness class went on a sea kayaking and winter camping trip. Perhaps the difference in activity had an effect on change, or lack of change, in student self-concept. The rock climbers could choose between climbs with varying degrees of difficulty. The students who went sea kayaking were unable to choose the difficulty of the activity, as such factors as waves and wind were uncontrollable. Although the engagement in both rock climbing and sea kayaking is oriented towards individual participation with support from other group members, each activity may be fundamentally different enough to impact self-concept in differing ways.

Covariates

The lack of use of covariates in outdoor adventure education research has been identified as a weakness of previous studies (Hattie et al., 1997). This study collected information from participants for potential use as covariates in the repeated measures ANCOVA.

The lack of significant correlations between Perceived Risk of Outdoor Activities, Previous Level of Outdoor Experience, and Risk Taking Behaviors resulted in the elimination of these variables as covariates in all but one analysis. This indicates the suggestion of Hattie et al. (1997), who recommended future research include variables that may affect the dependent variable under study, need to be examined to a much greater extent. The identification and use of covariates such as self-efficacy, coping mechanisms, activity type, and intensity of experience may be more viable for use in future studies.

Limitations

There are several limitations to this study. First, the use of a convenience sample limits the generalizability of the findings. This study employed high school students from a private school in New York City as participants. Related to this, most of the students were predominately Caucasian and by nature of a private school, of middle or upper middle socioeconomic class. Additionally, most students reported having grades of "B" or higher, generally indicating above-average scholastic ability. These findings may only be generalized to programs of this nature in large, urban environments. They should not be generalized to suburban or rural settings.

The researcher was unable to randomly assign participants to either the experimental or comparison group. However, there was no methodical process used by the school administration to assign students to the fall semester outdoor adventure education courses. Broad scheduling factors were the only factor in determining which semester students would take the outdoor adventure education course. Upper class students voluntarily enrolled in the outdoor adventure education course (i.e., Wilderness). These students were interested in furthering their outdoor experience and knowledge, potentially affecting how outdoor adventure education courses may impact on their self-concept.

The timing of the waves of data collection may also have affected the findings of this study. The final wave of data collection occurred directly before the traditional holiday season school recess, which may have affected student self-concept. The stress of being engaged in school, increased workload (e.g., homework), studying for exams, and preparation of college applications by seniors make this a busy time of the academic year. Additionally, this final data collection occurred immediately after the outdoor component of these classes ended. Perhaps delaying the final data collection session would have allowed students to more fully integrate their experiences into their self-concept, and done so at a less busy time of the year.

Other aspects of outdoor activities such as weather, temperature, contact with other groups,

and traffic to and from the location of the activity were not under control of the researcher. Additionally, the interpersonal relationships between the leaders and the students may have been different among groups. Although the factors mentioned above are also limitations for this research, the group leaders reported no untoward effects.

Recommendations

This researcher found both support and refutation of the findings of previous studies examining self-concept and outdoor adventure education with adolescents. Future research should identify and use covariates and other variables that may affect self-concept.

Outdoor adventure education courses with longer outdoor components have been shown to have more positive effects than short-term experiences (Hattie, et al., 1997). However, the findings of this study suggest there may be some benefits of multiple short-term courses. Factors such as length of time between short-term experiences, "timing" of the outdoor components in terms of their location in the greater academic schedule (e.g., Are the trips conducted during a busy time of the semester?), and the effects of the quantity of outdoor trips taken should be examined. The longitudinal effects of participation in these programs have received little attention.

Research should also be conducted using non-private school students. There may be latent factors affecting private high school students' self-concept that may be different from that of non-private school students. Studies should also examine programs offered by schools not located in large, urban environments.

This study did not examine the effects of the leadership team on changes in student self-concept. Future studies should include measurements of the leadership style(s) of the team members as well as the students' perceptions of their competencies and visions of them as outdoor leaders. Another aspect of leadership could be the students' expectations and perceptions of the leaders as role models compared to their actual experiences.

Another aspect of leadership may be the gender of the leaders. Having an all male or all female leadership team may affect change in self-concept, especially in same gender or in mixed gender groups. Additionally, the effects of continuous exposure to the leadership team both in and out of the traditional classroom over the course of the semester were not examined, and may be a factor. Perhaps exposure to new people in leadership roles would have a different effect on student self-concept.

Finally, although several researchers have investigated this topic, continual examination of change in self-concept as a result of participation in outdoor recreation activities should occur. The nature of the adolescent experience is ever changing. Increased exposure to electronic media, decreased levels of participation in physical activities, increased perceived level of daily stress, and the phenomenon of "growing up at a younger age" affect youth in contemporary society in much different ways than they did ten to fifteen years ago.

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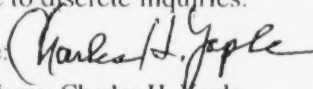
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